APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,771	05/11/2002	Guu-Chang Yang	ATCP0005USA	2712

			EXAMINER
27765	7590	01/09/2006	FERRIS, DERRICK W

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ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/063,771	YANG ET AL.
	Examiner	Art Unit	
	Derrick W. Ferris	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-8,10,11,13-16 and 18-20* is/are rejected.

7)☒ Claim(s) *4,9,12,17 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 May 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   **Claim 16** is missing. Please renumber the claims so that claim 16 is no longer missing.

For the purpose of the rejection the claims are addressed as originally presented.

2.   **Claim 9** is objected to because of the following informalities: claim 9 has two periods in

the claim. Claim 9 may only contain one period in the claim.   It appears from claim 5 that claim

9 should probably be two separate claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   **Claims 1, 3, 5-8, 10, 11 and 13** are rejected under 35 U.S.C. 103(a) as being

unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of

"Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary

Sequences" to *Tseng et al.* ("*Tseng*").

As such to **claim 1**, *Belaiche* discloses generating a code tree of two-dimesnonal

orthogonal variable spreading factor codes (2D-OSVF), where each node of the code tree

has a corresponding matrix, see e.g., paragraph 0020 on page 1 with respect to OSVF.

Belaiche also teaches selecting an N x M matrix from a node of the code of tree, where N

relates to a spreading factor (i.e. N is SF), see e.g., page 2. In particular, for the rejection

note that alpha is assumed to be equal to zero. As such, see e.g., paragraph 0028 on page

2 with respect to a formula for the spreading code factor (SF) where K is equal to N in the equation. As such, with respect to a first and second matrices see e.g., matrix A and B for paragraphs 0021 and 0022 on page 2. In particular, note that the code is computed using a kronecker product, see e.g., paragraph 0021 on page 2 and is computed iteratively since the codes are computed recursively, see also e.g., paragraph 0030 on page 2.

Belaiche is silent or deficient to the further limitation of a MS-DS/CDMA system and thus the further limitation of where M relates to the number of available frequency carriers.

Tseng teaches in combination the further recited limitation above at e.g., right-hand column on page 53 since each of the M sequences is assigned to an individual user which is assigned to a carrier.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* by clarifying that the third generation CDMA system as taught by *Belaiche* is an MC DS/CDMA system.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be to help reduce interference by transmitting on more than one carrier. In particular, *Tseng* cures the above-cited deficiency by providing a motivation found at e.g., right-hand column on page 53. Second, there would be a reasonable expectation of success since both references teach using CDMA.

As to **claim 3**, see e.g., figure 3 of *Belaiche* with respect to a code tree.

As to **claim 5**, *Belaiche* teaches using N x N matrixes which would include a 2 x 2 matrix as known by one skilled in the art, see e.g., paragraph 0021 on page 2.

As to **claim 6**, see e.g., paragraph 0026 on page 3 of *Belaiche* with respect to orthogonally of codes in a tree.

As to **claim 7**, see similar rejection to claim 1.

As to **claim 8**, in skilled in the art would note that in processing the matrix the matrix is stored in some type of memory in order to perform processing.

As to **claim 10**, see similar rejection to claim 5.

As to **claim 11**, see similar rejection to claim 1.

As to **claim 13**, see similar rejection to claim 5.

5.   **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent No. 6,975,615 B1 to *Toskala et al.* ("*Toskala*").

As such to **claim 2**, *Belaiche* and *Tseng* may be silent or deficient to the further limitation of wherein the children nodes of the code tree correspond to data transmission rates that are slower than those of parent nodes, thereby enabling multirate transmissions by utilizing orthogonal matrices in the code tree.

Toskala teaches in combination the further recited limitation above at e.g., column 8, lines 1-25 since the data rate is depends on the length of a spread code by traversing a code tree.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* and *Tseng* by clarifying that changing the data rate is well known in the art.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be transmit more or less information as needed. In particular, *Toskala* cures the above-cited deficiency by providing a motivation found at e.g., column 8, lines 1-25. Second, there would be a reasonable expectation of success since both references teach using CDMA.

6.   **Claims 14, and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent Application 2002/01012981 A1 to *Jechoux*.

As such to **claim 14**, see similar rejection to claim 1.

Belaiche and *Tseng* may be silent or deficient to the further limitation of where the base station generates the matrix and then transmits the M x N matrix to a mobile station.

Jechoux teaches in combination the further recited limitation above at e.g., paragraph 0052 on page 3 since matrix is sent from the base station to the mobile station.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* and *Tseng* by clarifying that it

is well known in the art to send configuration information to the mobile station from the base station including a code matrix such as the above limiation.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be to configure the mobile station. In particular, the mobile device or receiver would need to know what spreading codes to use and thus what matrix to use.

As to **claim 18**, see similar rejection to claim 5.

As to **claim 19**, see similar rejection to claim 6.

As to **claim 20**, see similar rejection to claim 14.

7.   **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent Application 2002/01012981 A1 to *Jechoux* and U.S. Patent No. 6,975,615 B1 to *Toskala et al.* ("*Toskala*").

As to **claim 15**, see similar rejection to claim 2.

Allowable Subject Matter

8.   **Claims 4, 9, 12, 17 and 21** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the

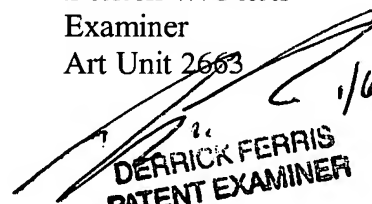examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123.

The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derrick W. Ferris
Examiner
Art Unit 2663

DWF